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Original article

The Impact of Seafarers' Perceptions of National Culture and Leadership on Safety Attitude and Safety Behavior in Dry Bulk Shipping *

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Abstract

This research aims to examine the effects of national culture and leadership style on safety performance in bulk shipping companies. Survey data collected from 322 respondents working in dry bulk carriers was used, a multiple regression analysis was conducted to analyze the influence of national culture and leadership styles (i.e. transformational, passive management, and contingent reward) on safety attitude and safety behavior. The results indicate that national culture dimensions such as power distance, uncertainty avoidance, collectivism, and long-term orientation had a positive influence on safety behaviour. Long-term orientation had a positive influence on safety attitude, whereas masculinity had a negative influence on safety attitude of seafarers. Specifically, this research found that transformational leadership had a positive influence on safety attitude and safety behaviour of seafarers. Moreover, practical implication from the research findings to improve ship safety in dry bulk shipping were discussed.

Keywords: Bulk shipping; National culture; Transformation leadership, Transactional leadership, Safety attitude, Safety behavior

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I. Introduction

The development of global trade and economics is dependent on shipping services. Over 90 % of global trade is carried by sea (International Maritime Organization, 2015). Shipping is a highly international and multicultural industry, which has led to a significant change of labor market of seafarers that are becoming more and more multinational. Therefore, multiculturalism is a general feature of crews in the current ship operations. Around 70-80 % of world's merchant fleet has multicultural crews (Hanzu-Pazara and Arsenie, 2010). Multiculturalism crews on board with a lack of a common language or cultural difference could result in a high risk of work environment on ships (Theotokas and Progoulake, 2007). For example, there was the incident of the container ship Cosco Busan striking the San Francisco Bay Bridge on 7 November 2007, resulting in 53,500 gallons of bunker fuel being discharged into the bay and causing pollution. One of the major causes of the collision was a lack of effective communication between American pilot and Chinese Captain during the accident voyage (Marine Department, 2007). A report from the Philippine National Maritime Polytechnic (2002) also pointed out the Filipino seafarers also had communication problems, which are induced by different attitude and culture manifested among crew members. Based on the study of Hofstede and Bond (1988), Lu et al. (2012) investigated the impact of national culture on human failures in container shipping and found that there will be fewer human failures when seafarers have low national culture with respect to power distance, and high national culture dimensions such as collectivism and uncertainty avoidance.

With the reception of the studies of Lu et al., (2012) and Håvold (2007), relatively few research have been done to examine the national culture in shipping and how these national cultural differences influence on seafarers safety behaviors. National culture can be defined as "… the collective programming of the mind which distinguishes the members of one group or society from another …"(Hofstede, 1980, p. 25). Hofstede (1980) identified national culture by basing on four national cultural dimensions, namely power distance, individualism/collectivism, uncertainty avoidance, and masculinity/femininity. Furthermore, Hofstede and Bond (1988) added the fifth dimension, Confucian dynamism/long-term orientation to link national culture with economic growth. However, a majority of previous studies have suggested that organizational leaders play an important role in influencing employees' safety attitudes and behaviors in the workplace (Kelloway et al., 2006). Prior studies have shown that employees' perceptions of leaders' and supervisors' commitment to safety can predict employees' willingness to raise safety issues in the workplace (Cree and Kelloway, 1997; Hofmann and Morgeson, 1999; Mullen, 2005). We argue that effective leader behavior could foster employees' safety behaviors and improve safety-related outcomes. On the contrast, we note that passive or ineffective leadership could negatively influence employees' safety behavior and increase potential risks (Keeloway et al., 2006). Nevertheless, there seems a lack of previous research which has examine how national culture and leadership simultaneously influence employees' safety behaviors because these two variables co-exist within a ship operations.

Lu et al. (2012) have examined the influence of national culture on human failures, specifically focusing on seafarers who are working in the container shipping vessels. Similar to

container shipping, dry bulk shipping is one of the world's most dangerous occupations. Notably, the bulk carriers accounted for 42.9 % of the total tonnage, followed by oil tankers (28.5 per cent) and container ships (12.8 per cent) (UNCTAD, 2014). Dry bulk shipping provides sea transportation services for the five major bulk commodities (iron ore, coal, grain, bauxite and alumina, and phosphate rock), accounting for 44.2 per cent (2.92 billion tons) of the total volume of dry cargo (UNCTAD, 2014). There is a scarcity of previous studies examining whether seafarers' safety behaviors are related to their perceptions of national culture and the captain's leadership in the dry bulk shipping context. Are national culture and leadership important for the enhancement of safety behavior? How are they related to seafarers' safety behaviors? We will attempt to answer these questions by examining the effects of national culture and leadership on ship safety in dry bulk shipping operations from the seafarers' perceptions.

This research is organized as follow: we introduce the background and motivation in Section 1. The theoretical background and research hypotheses are posited in Section 2. In the third section we briefly introduce methodology, including the measurement constructs, sampling technique, and analytical methods. Section 4 shows the results from a regression analysis. We draw conclusions from the research findings and implication in the final section.

II. Theoretical Background and Research Hypotheses

2.1. National Culture, Safety Attitude, and Safety Behavior

Based on the studies of Hofstede (1980) and Hofstede and Bond (1988), national culture consists of five dimensions, namely power distance, individualism/collectivism, uncertainty avoidance, masculinity/femininity, and Confucian dynamism/long-term orientation. Hofstede (1991) defined power distance as the degree to which people accept interpersonal inequality in power and organizational institutionalization of such inequality. Employees possessing low power distance consider themselves to have the same rights as their leaders will be more likely to have positive attitude to carry out in safety issues. Collectivism refers to the degree to which people are oriented towards acting as part of a group within an organization that is like a family by employees (Hofstede, 1980). People in collective societies achieve satisfaction in well-recognized jobs, striving to preserve face and avoid shame, so as not to bring disrespect to their peer group (Hofstede, 1980). Uncertainty avoidance is the degree to which the members of a society feel uncomfortable with uncertainty and ambiguity, which leads them to support beliefs promising to be certain and to maintain institutional norms for protecting conformity (Hofstede, 1985, p. 347). Masculinity refers to a preference for achievement, heroism, assertiveness, and material success, whereas femininity stands for a preference for relationships, modesty, caring for the weak groups, and quality of life (Hofstede, 1985). High masculine societies place a low value on caring for others, inclusion, cooperation, and solidarity. Long-term orientation refers to the degree to which a culture focuses on the future (Bearden et al., 2006). People with a high level of Confucian dynamism are respectful of tradition, fulfilling social obligations, and protecting one's face, while those with a low level of Confucian dynamism are thrifty, hardworking, and persevering

(Hofstede and McCrae, 2007). National culture is one kind of belief which would drive the perception and action. Håvold (2007) emphasized that safety orientation is the result of cultural, organizational and contextual factor of attitude and behaviour that in turn influence safety. In the study, he conducted multivariate analysis to understand the relationship between safety orientation and national culture. Finally, he also found the strong relation between these factors. Lu et al. (2012) examined the effects of the seafarers' perceptions of national culture on the occurrence of human failures which affect work safety in container shipping. The results also emphasized the importance of national culture on safety attitude and behavior According to the studies of Lu et al. (2012) and Håvold (2007) in the shipping context, we postulate hypotheses in the following:

H_1: Power distance is negatively related to safety attitude of seafarers in dry bulk shipping

H_2: Power distance is negatively related to safety behaviors of seafarers in dry bulk shipping

H_3: Collectivism is positively related to safety attitude of seafarers in dry bulk shipping

H_4: Collectivism is positively related to safety behaviors of seafarers in dry bulk shipping

H_5: Uncertainty avoidance is positively related to safety attitude of seafarers in dry bulk shipping

H_6: Uncertainty avoidance is positively related to safety behaviors of seafarers in dry bulk shipping

H_7: Masculinity is negatively related to safety attitude of seafarers in dry bulk shipping

H_8: Masculinity is negatively related to safety behaviors of seafarers in dry bulk shipping

H_9: Long-term orientation is positively related to safety attitude of seafarers in dry bulk shipping

H_{10}: Long-term orientation is positively related to safety behaviors of seafarers in dry bulk shipping

2.2 Transformational Leadership, Safety Attitude, and Safety Behavior

In this research, we propose and test a model liking leadership and seafarers' safety behaviors in dry bulk shipping. Leadership refers to "Senior" leadership (Reid et al., 2008), and "Strategic" leadership (Phillips and Hung, 1992). Basically, leadership can be divided into transformational and transactional leadership (Zohar, 2003; Keeloway et al., 2006). Transformational leadership builds on individualized interaction, resulting in better exchange quality and greater concern for welfare (Bass and Avolio, 1997). It consists of inspirational motivation, individualized consideration, idealized influence, and intellectual stimulation (Barling et al., 2002). Conversely, transactional leadership is established through a social exchange relationship such as a reward and monitoring system for meeting specific objectives (Reid et al., 2008), which comprises three major leaderships dimensions, namely: contingent reward or contingent reinforcement, active management, and passive management (Hater and Bass, 1988). The transformational leader inspires subordinates to do more than originally expected, whereas the transactional leader motivates followers to perform as expected. The followers or subordinates under transformation

leaderships can be achieved by raising the awareness of the importance and value of expected outcomes, getting subordinates to transcend their own self-interests and increasing subordinates' needs (Bass, 1985). Transformational leadership affects employees attitudes, organizational commitment, satisfaction with leadership, trust in management and work performance (Barling et al., 2002). Lu and Yang (2010) suggested the importance of a safety specific transformational leadership and its influence on employees' safety behaviors in container terminal operations. Safety motivation and safety concern were found to have a positive influence on employees' safety behaviors. Where high levels of transformational leadership exist, it is expected that employees will go above and beyond the requirements of their work roles to and contribute more efforts to reduce work risks and foster safety. Transformational leadership can achieve major changes in the attitudes and assumptions of employees and can help build commitment for the organizational goal (Yukl, 1989). Therefore, this research postulates the following hypothesis:

H_{11}: Transformational leadership is positively related to safety attitude of seafarers in dry bulk shipping

H_{12}: Transformational leadership is positively related to safety behaviors of seafarers in dry bulk shipping

2.3 Transactional Leadership, Safety Attitude, and Safety Behavior

With respect to transactional leadership, Kelloway et al. (2006) argued that passive leaders lack positive leadership skills and do not achieve desired outcomes. A leader with passive management style fails to engage in critical issues until problems are either brought to their attention or become serious enough to require their attention (Bass, 1990). Howell and Avolio (1993) found a passive management leadership is negatively associated with organizational performance. Therefore, this research posits that:

H_{13}: Transactional passive management leadership is positively related to safety attitude of seafarers in dry bulk shipping

H_{14}: Transactional passive management leadership is negatively related to safety behaviors of seafarers in dry bulk shipping

Contingent rewards were found to be positively related to effective employee performance (Podsakoff et al., 1982). Many researchers stated that transactional contingent reward was the core component of effective leadership behavior in organizations (Bass et al., 2003). While employees accepted, agreed and complied with the leader in exchange for rewards, resources and praise, employees will successfully accomplish their works and assignments (Bass et al., 2003). Therefore, we would expect some degree of effort by employees engaging in the organizational goal when the leader is providing in contingent reward. Thus, the specific hypotheses tested in this research include the following:

H_{15}: Transactional contingent reward leadership is negatively related to safety attitude of seafarers in dry bulk shipping

H_{16}: Transactional contingent reward leadership is negatively related to safety behaviors of seafarers in dry bulk shipping

III. Methodology

We obtained the data for the study by administering a questionnaire survey to seafarers working on onboard vessels of 7 top dry bulk shipping companies in Taiwan. These dry bulk shipping companies are Wisdom Marine, First Steamship, Eastern Media International, Today Makes Tomorrow, China Steel Express, Kung Ming Shipping, and Glory Pacific. Due to the limitation of sailing schedule of dry bulk shipping, we had sent the questionnaires to the vessel, where the shipmaster was requested to distribute them to the crew members. Once the questionnaires were completed, the crew member sent them to us by a return envelope. We received 322 usable questionnaires from 800 surveys for data analyses. Thus, the response rate was 40.25%. The major nationality of respondents were Mainland China (86.6%) and Taiwan (13.4%). The respondents hold different positions on the ships. Those are masters, deck officers, deck ratings and those who working in the engineering department, including chief engineers, engineers and engine ratings. Nearly 49%of the respondents had been working on the ship for 5 years. Most respondents (46%) were under 30 years old. The majority of the respondents did not indicate their religion (57.5%).

The measurement items for national culture, safety attitude, and safety behavior in shipping operations were adopted from the studies of Lu et al. (2012) and Håvold (2007). The items used such as "My supervisors make most decisions without consulting me.", "I like to work in a well-defined job where the requirements are clear.", "Group success is more important for me than my personal accomplishment.", "I do not like to help and care for others.", "I prefer long-term outlook than immediate benefit." Regarding the measurement items for transformational and transactional leaderships were based on the previous studies of Bass (1985), and Bass and Avolio (1990) (see Appendix A). A five-point Likert scale was used with a rang from 1 (strongly disagree) to 5 (strongly agree). A regression analysis was conducted to analyze the effects of national culture and leadership on seafarers' safety attitudes and safety behaviors.

IV. Survey Results

Descriptive Statistical Analysis Results

Table 1 and Table 2 presents the means, standard deviations, and correlations of the variables measured in this research. In terms of national culture dimensions, Table 1 indicates that respondents had their highest mean score on long-term orientation (mean =4.238), followed by collectivism (mean = 4.195), uncertainty avoidance (mean = 4.163), power distance (mean= 3.653), and masculine (mean = 2.340). Table 1 also indicates that respondents had higher safety

behavior (mean = 4.203) than safety attitude (mean = 3.687). Additionally, as predicted by Hypotheses, power distance, uncertainty avoidance, and long-term orientation were positively correlated to safety attitude and safety behaviors of seafarers in dry bulk shipping. As would be expected, masculinity was negatively related to both safety attitude (r =-0.274) and safety behavior (r = -0.213). Masculine individuals are characterized as assertive, aggressive, ambitious, competitive, and materialistic. Ship operations rely not only on seafarers' skills and competence but also on team-work between crew members. Therefore, a seafarer with high masculinity might weaken safety attitude and safety behavior and increase the risks in ship operations. Interestingly, long-term orientation was more strongly positively related to safety behavior (r = 0.581).

Table 1: Means, standard deviations, and correlations between national culture, safety attitude, and safety behavior

Constructs	*Mean*	*SD*	Power distance	Uncertainty avoidance	Collectivism	Masculine	Long-term orientation	Safety attitude	Safety behavior
Power distance	3.653	0.584	1.000 .	--	--	--	--	--	--
Uncertainty avoidance	4.163	0.577	0.288** 0.000	1.000 .	--	--	--	--	--
Collectivism	4.195	0.563	0.283** 0.000	0.619** 0.000	1.000 .	--	--	--	--
Masculine	2.340	0.692	0.036 0.524	0.160** 0.004	0.208** 0.000	1.000 .	--	--	--
Long-term orientation	4.238	0.549	0.201** 0.000	0.508** 0.000	0.554** 0.000	0.224** 0.000	1.000 .	--	--
Safety attitude	3.687	0.752	0.113* 0.042	0.170** 0.002	0.196** 0.000	-0.274** 0.000	0.256** 0.000	1.000 .	--
Safety behavior	4.203	0.498	0.306** 0.000	0.519** 0.000	0.575** 0.000	-0.213** 0.000	0.581** 0.000	0.238** 0.000	1.000 .

Note: SD: Standard deviation, * Significance level p<0.05, ** Significance level p<0.01

An evaluation of respondents' aggregated perceptions of leadership, Table 2 shows that transformational leadership (mean = 3.733) was viewed as the most agreed leadership in the current ship operations by respondents, followed by contingent reward leadership (mean = 3.562), and passive management leadership (mean = 3.426). Transformational leadership and transactional contingent reward were positively correlated with safety behavior. However, transactional contingent reward and passive management leadership were not found to have significant influence on safety attitude of seafarers. Results indicated that transformation leadership was more strongly positively related to safety behavior (r = 0.338).

We performed one-way analysis of variance (ANOVA), using mean scores to examine the perceived differences of national cultures, leadership, safety attitude, and safety behavior between Chinese and Taiwanese seafarers. As shown in Table 3, the results reveal statistically significant differences for power distance and transactional passive management dimensions at the 5% significance level. The results show that Taiwanese seafarers have propensity for power distance, uncertainty avoidance, and collectivism, whereas Chinese seafarers lean more towards long-term orientation. In addition, Table 3 shows the levels of transformation leadership (mean = 3.752) and

contingent reward leadership (mean = 3.577) in the Chinese seafarer respondents are slightly higher than seafarers from Taiwan.

Table 2: Means, standard deviations, and correlations between leadership style, safety attitude, and safety behavior

Constructs	*Mean*	*SD*	Transformational	Contingent reward	Passive management	Safety attitude	Safety behavior
Transformational Leadership	3.733	0.570	1.000 .	--	--	--	--
Contingent reward	3.562	0.746	0.288** 0.000	1.000 .	--	--	--
Passive management	3.426	0.602	0.283** 0.000	0.619** 0.000	1.000 .	--	
Safety attitude	3.687	0.752	0.205** 0.000	0.037 0.506	-0.021 0.709	1.000 .	
Safety behavior	4.203	0.498	0.338** 0.000	0.171** 0.002	0.130* 0.020	0.238** 0.000	1.000 .

Note: SD: *Standard deviation, * Significance level p<0.05, ** Significance level p<0.01*

There is more variability in the passive management dimension: Taiwanese seafarers (mean = 3.682) are significantly higher than Chinese seafarers (mean = 3.387). Overall, Table 3 also indicates that Taiwanese seafarers have higher safety attitude and safety behavior than Chinese seafarers.

Regression Analysis Results

We employ a multiple regression analysis to test the hypotheses. This research predicts the national culture dimensions of power distance, uncertainty avoidance, collectivism, and long-term orientation will have a positive influence on safety attitude and safety behavior. As can be seen in Table 4, the coefficients for the influence of power distance, uncertainty avoidance, and collectivism on safety attitude are not significant, so H_1, H_2, and H_3 are not supported. The results found long-term orientation is positively related to safety attitude and safety behavior, whereas power distance, uncertainty avoidance, collectivism, and long-term orientation are positively related to safety behavior. This findings are supported by Lu et al. (2012), since they examined the effects of seafarers' perceptions of national culture on the human failures which affected working safety, particularly using Confucian Dynamism (also called long-term orientation) as a moderating role, proving the positive relation with safety. Long-term orientation plays an important role as its affects the strength of associations between some national culture dimensions and human failures. In addition, the coefficient for masculinity shows that it is negatively and significantly related to safety attitude ($\beta = -0.211$, $p < 0.05$). Thus, H_4, H_5, H_6, H_7, H_8, and H_{10} are supported in this study. The coefficient for the relationship between masculine and safety behavior is not significant, so H_9 is not supported. Regarding the effect of transformational leaderships on safety attitude, as we posit in H_{11}, the coefficient is positive and significant (β =

0.151, $p < 0.05$). These findings are consistent with the previous studies (Burke et al., 2008; Håvold, 2007; Lu and Yang, 2010; Lu et al, 2012; Zohar, 2002). However, the coefficients for other leadership dimensions shows that their influences on safety attitude and safety behavior are not significant. Thus, H_{12}, H_{13}, H_{14}, H_{15}, and H_{16} are not supported in this study.

Table 3: Comparison of differences in respondents' perceptions of national culture, leadership, safety attitude, and safety behavior based on nationality

Factors	Nationality Mainland China (N=279)	Taiwan (N=43)	F-value	p-value
National Culture				
Power distance	3.624	3.837	4.982	0.026*
Uncertainty avoidance	4.139	4.317	3.574	0.060
Collectivism	4.178	4.308	1.981	0.160
Masculine	3.648	3.728	0.495	0.482
Long-term orientation	4.239	4.232	0.005	0.943
Leadership Type				
Transformational	3.752	3.613	2.227	0.137
Contingent reward	3.577	3.465	0.842	0.360
Passive management	3.387	3.682	9.136	0.003*
Safety attitude	3.684	3.709	0.040	0.842
Safety behavior	4.199	4.228	0.127	0.722

Note: * Significance level p<0.05, ** Significance level p<0.01

Table 4. Regression analysis results

Dimensions	Safety attitude	Safety behavior
National culture		
Power distance	0.035	0.109*
Uncertainty avoidance	0.017	0.155*
Collectivism	-0.002	0.244*
Masculine	-0.211*	-0.056
Long-term orientation	0.166*	0.327*
Leadership type		
Transformational	0.151*	0.026
Contingent reward	-0.061	0.013
Passive management	-0.060	-0.030

Note: Significance level * p<0.05

V. Discussions and Conclusions

Dry bulk shipping is one of the most dangerous industries. This study highlights the importance of national culture and leadership in explaining seafarers' safety attitudes and safety behaviors in the context of dry bulk shipping operations. To the best of our knowledge, this is the first study that provides empirical evidence on the issues of national culture and leadership in explaining seafarers' safety behaviors in ship safety. Several implications can be drawn from the main findings of this

research. First, shipping is a multicultural business. National culture is one of the critical factors affecting seafarers' safety behaviors. Despite each national culture dimension of national culture seems to be associated with different levels of influence on safety behavior and safety attitude. This research found that long-term orientation dimension was more strongly positively related to seafarers' safety behavior. In the Cosco Busan incident, was a case which was caused by multiculture, which the Chinese captain kept silent even when the American pilot made an unappropriated decision. Conclusion was drawn that shipping companies can develop an effective management of cultural differences to elaborate safety behavior in ship operations. Second, captain's leadership is an important factor affecting seafarers' safety behaviors in dry bulk shipping. With respect to the type of leadership, transformation leadership was more strongly positively related to safety behavior. Seafarers perceptions of transformational leadership are predictive of safety behavior and can therefore be useful to reduce seafarer injuries. This finding is consistent with that demonstrated in the previous studies on work safety (Barling et al., 2002; Lu and Yang, 2010; Kelloway et al., 2006). Finally, this research found Chinese seafarers had slightly higher levels of transformation leadership and contingent reward leadership than Taiwanese seafarers. This findings indicate that different leadership will lead to different safety behavior based on vary nationalities. Thus, this study suggested that seafarers' nationalities should be considered examine the effectiveness of leadership on seafarer safety behavior or safety attitude.

However, this research was limited in the data collected on self-perceived national culture, leadership, safety behavior, and safety attitude of seafarers in dry bulk shipping. This may be subject to bias in terms of seafarers' willingness to respond. Respondents may have been reluctant to report their safety behaviors because of potential personal repercussion and any interests consideration against the company. Second, this study had only considered the variables of national culture and leadership in explaining safety behavior. A number of prior studies have suggested that safety climate (Zohar, 2002), leader-member exchange (LMX) (Hofmann et al., 2003), and team-member exchange (TMX) (Liden et al., 2000) could be considered in the future search. Finally, this study was conducted only at a specific moment in time. Future studies may be conducted using the longitudinal approach to examine the short-and long-term effects of national culture and leadership on ship operations.

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Appendices

Dimension	Items	References
National Culture		
Power Distance	1. My supervisors make most decisions without consulting me. 2. I tend to avoid any potential arguments with my supervisor. 3. I am always afraid to disagree with my supervisor.	Blodgett et al. (2001); Håvold (2007); Lu et al (1999)
Uncertainty Avoidance	4. I like to work in a well-defined job where the requirements are clear. 5. It is important for me to work for a company that provides high employment stability. 6. I think that the company should use clear and explicit guidelines when evaluating me.	Blodgett et al. (2001) ; Håvold (2007); Lu et al (1999)
Collectivism	7. Group success is more important for me than my personal accomplishment. 8. Working in a group is better than working alone. 9. Decisions made by the group are better than those made by individuals. 10. Contributing to the group is the most important aspect of work.	Blodgett et al. (2001) ; Håvold (2007); Lu et al (1999)
Masculine	11. I do not like to help and care for others. 12. I stress on making a career than quality of life. 13. Making a career is more important than good relationships with co-workers.	Blodgett et al. (2001) ; Håvold (2007); Lu et al (1999)
Long-Term Orientation	14. I prefer long-term outlook than immediate benefit. 15. I respect for social and status obligations within limits. 16. I think to have a sense of shame is important. 17. I think the perseverance is important in my life. 18. I do not mind giving up today's fun for success in the future. 19. I work hard for success in the future.	Bearden et al. (2006) ; Håvold (2007); Lu et al (2012)
Leadership Style		
Transformational	1. Captain makes me feel good to be around him. 2. I am proud to be associated with captain. 3. I have complete faith in captain. 4. Captain has provided me with new ways of looking at things which used to be puzzle for me.	Bass (1985); Bass and Avolio (1990)

	5. Captain gets me to rethink ideas that I had never questioned before.	
	6. Captain enables me to think about old problems in new ways.	
	7. Captain increases my optimism for future.	
	8. Captain encourages me to express my ideas and opinions.	
	9. Captain helps me find meaning in my work.	
	10. Captain finds out what I want and tries to help me get it.	
	11. Captain gives personal attention to those who seem neglected.	
	12. I earn credit with captain by doing my job well.	
Transactional	13. Captain tells me what to do if I want to be rewarded for my efforts.	
	14. Captain assures me that I can get what I personally want it exchange for my efforts.	
	15. Captain talks a lot about special commendation and promotions for good work.	Bass (1985); Bass and Avolio (1990)
	16. As long as things are going all right, captain does not try to change anything.	
	17. Captain only tells me what I have to know to do my jobs.	
	18. Captain is content to let me continue doing my jobs in the same way as always.	
Safety Performance		
Safety Attitude	1. I think accidents are avoidable.	Cooper (1998); Roundmo et al. (2003); Lu et al (2012)
	2. I think it is not necessary to ignore safety regulations to get a job done.	
	3. I think that not all accidents are preventable, some people are just unlucky.	
Safety Behavior	4. I will keep my work equipment in safe working condition.	
	5. I encourage others to be safe.	
	6. I report safety problems to my supervisor when I see safety problem.	Cooper (1998); Hayes et al. (1998); Lu et al (2012)
	7. I follow all safety procedures regardless of the situation I am in.	
	8. I follow safety rules that I think are necessary.	
	9. I keep my work area clean.	
	10. I correct safety problems to ensure accidents will not occur.	